

1 Patent claims

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3 1. A device for monitoring the leakage current of a surge
4 arrester having a measuring element for the purpose of
5 checking the leakage current flowing in the arrester circuit
6 and a filter arrangement for the purpose of filtering out
7 the third harmonic from the leakage current, which is a
8 measure of the operating state of the arrester, the filter
9 arrangement (8) being connected to an evaluation circuit
10 (12, 24) for the third harmonic,
11 characterized
12 in that, if appropriate, at least one warning signal is
13 output to a display apparatus (13, 14, 15, 25) which is
14 connected to the evaluation circuit, and in that a
15 transformer (16) is connected into the arrester circuit (3),
16 via which transformer (16) the power for a voltage supply to
17 the filter arrangement (8) and the evaluation circuit (12,
18 24) can be output.

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20 2. The device as claimed in claim 1, characterized in that
21 the primary winding (17) of the transformer (16) is in the
22 arrester circuit (3), and the secondary winding (18) is
23 connected to a rectifier circuit (19), which is connected to
24 the filter arrangement (8) and the evaluation circuit (12,
25 24).

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27 3. The device as claimed in claim 1 or claim 2,
28 characterized in that the measuring element is a measuring
29 resistor (7).

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31 4. The device as claimed in claim 1 or claim 2,
32 characterized in that the measuring element is a current-
33 compensated coil arrangement comprising a current
34 compensator (23), the current compensator (23) being
35 connected to the filter arrangement (8) and the rectifier
36 circuit.

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1 5. The device as claimed in one of claims 1 to 4,
2 characterized in that the filter arrangement comprises an
3 active bandpass filter (8).

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5 6. The device as claimed in one of claims 1 to 5,
6 characterized in that the evaluation circuit comprises a
7 microprocessor circuit (12), which evaluates the peak values
8 of the third harmonic and outputs at least one warning
9 signal.

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11 7. The device as claimed in one of claims 1 to 5,
12 characterized in that the evaluation circuit is a threshold
13 value circuit (24), which outputs a warning signal when a
14 threshold value is exceeded.

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16 8. The device as claimed in one of claims 1 to 7,
17 characterized in that the display apparatus is of the visual
18 or audible type.

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20 9. The device as claimed in one of claims 1 to 8,
21 characterized in that the display apparatus has at least one
22 LED (13, 14, 15, 25).

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24 10. The device as claimed in one of claims 1 to 9,
25 characterized in that the display apparatus comprises a
26 plurality of LEDs (13, 14, 15), and in that the evaluation
27 circuit (12) drives different light-emitting diodes on the
28 basis of the magnitude of the peak values.

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30 11. The device as claimed in one of claims 1 to 10,
31 characterized in that a coil arrangement (9), which is
32 provided with a toroidal core (10) and two coils (11) wound
33 around the toroidal core, is connected in the arrester
34 circuit (3), the connections of the coils being passed to
35 the outside for connection to an external measuring device
36 in the event of the presence of a warning signal.